



Safety Data Sheet

In accordance with CFR 1910.1200 (OSHA HCS)

SDS No. 150

Date of review: June 2, 2015

1 Identification of substance and company

Product name: **Arsenic (III) oxide**
Product code: 11471, 11608, 17523, 18864, 90916
Relevant use and restrictions on use: Research and product development
Manufacturer/Supplier: Noah Technologies Corporation
1 Noah Park
San Antonio, Texas 78249-3419
Phone: 210-691-2000
Fax: 210-691-2600
Web site: www.noahtech.com
Emergency information: CHEMTREC
800-424-9300

2 Hazards Identification

Emergency Overview:



Signal word(s):

Danger

Pictogram(s):

Skull and crossbones

Health hazard

Corrosion

Environment

Hazard statements:

H300 Fatal if swallowed

H314 Causes severe skin burns and eye damage

H318 Causes serious eye damage

H350 May cause cancer

H410 Very toxic to aquatic life with long lasting effects

Precautionary statements:

P260 Do not breathe dust or mist

P264 Wash skin thoroughly after handling

P270 Do not eat, drink or smoke when using this product

P273 Avoid release to the environment

P280 Wear protective gloves/protective clothing/eye protection/face protection

P301/310/330 IF SWALLOWED: Immediately call a POISON CENTER or doctor/physician. Rinse mouth.

P303/361/353 IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower.

P304/340/310 IF INHALED: Remove person to fresh air and keep comfortable for breathing. Immediately call a POISON CENTER or doctor/physician

P305/351/338/310 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Immediately call a POISON CENTER or doctor/physician.

Hazards not otherwise classified:

None

Ingredients of unknown acute toxicity:

None

GHS Classification:

Acute toxicity, Oral - 2

Skin corrosion - 1B

Serious eye damage - 1

Carcinogenicity - 1A

Acute aquatic toxicity - 1

Chronic aquatic toxicity - 1

HMIS ratings (scale 0-4):

Health hazard: 3*

Flammability: 0

Physical hazard: 0

3 Composition/Information on Ingredients

Chemical name: Arsenic (III) oxide
Designation:
CAS number: 1327-53-3
EC number: 215-481-4
Formula: As₂O₃
Synonyms: Arsenic trioxide, arsenious acid
Ingredients of known acute toxicity: Arsenic (III) oxide

4 First aid measures

After inhalation:	Move person into fresh air. If not breathing, give artificial respiration. Consult a physician.
After skin contact:	Take off contaminated clothing and shoes immediately. Wash off with soap and plenty of water. Take victim immediately to hospital. Consult a physician.
After eye contact:	Rinse thoroughly with plenty of water for at least 15 minutes and consult a physician. Continue rinsing eyes during transport to hospital.
After ingestion:	Do NOT induce vomiting. Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician.
Information for doctor:	Show this safety data sheet to the doctor in attendance
Symptoms/effects; acute and delayed:	Ingestion results in marked irritation of the stomach and intestines with nausea, vomiting, and diarrhea. In severe cases, the vomitus and stools are bloody and the patient goes into collapse and shock with weak, rapid pulse, cold sweats, coma and death. Chronic poisoning may manifest itself in different ways. There may be disturbances of the digestive system such as cramps, nausea, constipation, or diarrhea. Liver damage may occur. Disturbances of the blood, kidneys and nervous system may occur.
Immediate medical attention and special treatment needed:	See above

5 Fire-fighting measures

Suitable and unsuitable extinguishing agents:	Water spray, alcohol-resistant foam, dry chemical or carbon dioxide
Special hazards caused by the material, its products of combustion or resulting gases:	Oxides of arsenic
Special fire fighting procedures:	Wear self-contained breathing apparatus and fully protective fire fighting equipment/clothing
Unusual fire and explosion hazard:	No available data

6 Accidental release measures

Person-related safety precautions:	Wear respiratory protection. Avoid dust formation. Avoid breathing vapours, mist or gas. Ensure adequate ventilation.
Measures for environmental protection:	Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Discharge into the environment must be avoided.
Measures for cleaning/collecting:	Pick up and arrange disposal without creating dust. Sweep up and shovel. Keep in suitable, closed containers for proper disposal.
Additional information:	See Section 7 for information on safe handling See Section 8 for information on personal protective equipment See Section 13 for information on disposal See Section 15 for regulatory information

7 Handling and storage

Information for safe handling:	Avoid contact with skin and eyes. Avoid dust formation. Provide appropriate exhaust ventilation.
Information about protection against explosions and fires:	No data available
Storage requirements to be met by storerooms and containers:	Keep container tightly closed in a dry and well-ventilated place
Incompatibility (avoid contact with):	Strong acids and oxidizers. Reacts rigorously with rubidium carbide, chlorine trifluoride, fluorine, mercury, sodium chlorate, tannic acid, inter-halogens
Further information about storage conditions:	May decompose on exposure to moist air or water

8 Exposure controls/personal protection

Ventilation requirements:	Local exhaust, chemical fume hood
Components with exposure limits that require monitoring:	OSHA PEL: TWA 0.01 mg(As)/m ³ ACGIH TLV: TWA 0.01 mg(As)/m ³ ; Target organs: liver, kidneys, skin, CNS, respiratory system, lungs
Additional information:	No additional data available
General protective and hygienic measures:	The usual precautionary measures for handling chemicals should be adhered to Keep away from foodstuffs, beverages and food Instantly remove any soiled and impregnated garments Wash hands during breaks and at the end of the work Avoid contact with the eyes and skin
Personal protective equipment:	
Respiratory protection: (Use only NIOSH or CEN approved Equipment)	Filter-dust, fume, mist; respirator equipped with HEPA
Hand protection:	Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique.
Eye protection:	Safety glasses, goggles
Skin protection:	Completely covering work attire with full length apron
Additional protective equipment:	Sufficient to prevent contact. Emergency eyewash and safety shower
Precautionary labeling:	Wash thoroughly after handling Do not get in eyes, on skin or on clothing Do not breathe dust, vapor, mist, gas Keep away from heat, sparks, and open flames Empty container may contain hazardous residues

Physical and chemical properties

Physical state:	Powder
Color:	White to off-white
Odor:	Odorless
Odor threshold:	Not determined
Molecular Weight (Calculated):	197.84
pH	Not determined
Melting point/freezing point/range:	312.3 C
Boiling point/range:	457.2 C
Sublimation temperature/start:	Not determined
Decomposition temperature:	Not determined
Flammability (solid, gas):	Not determined
Flash point:	Not determined
Autoignition temperature:	Not determined
Danger of explosion:	Not determined
Flammable limits:	
Lower:	Not determined
Upper:	Not determined
Evaporation Rate:	Not determined
Vapor pressure (mm Hg):	0.000001 mm Hg @ 66 C
Vapor density:	Not determined
Specific gravity:	3.738
Bulk density:	Not determined
Solubility in/Miscibility with water:	37 g/L @ 20 C
Partition coefficient n-octanol/water:	log Pow: 5
Viscosity:	Not determined
Other information:	Not determined

10 Stability and reactivity

Reactivity:	Not determined
Chemical stability:	Stable under recommended storage conditions
Possibility of hazardous reactions:	Not determined
Conditions to be avoided:	Heat, contact with incompatibles
Materials to be avoided:	See section 7 for information on proper handling and storage
Dangerous reactions:	Reacts rigorously with rubidium carbide, chlorine trifluoride, fluorine, mercury, sodium chlorate, tannic acid, inter-halogens
Hazardous decomposition products: (thermal and other)	Oxides of arsenic

11 Toxicological information

LD/LC50 values that are relevant for classification:	oral-rat LD ₅₀ : 14.6 mg/kg
Irritation or corrosion of skin:	No data available
Irritation or corrosion of eyes:	No data available
Primary irritant or corrosive effect:	
on the skin:	Causes severe skin burns
on the eye:	Causes serious eye damage
Sensitization:	No data available
Potential health effects:	
Inhalation:	May cause serious respiratory tract damage
Ingestion:	Severe irritation of the stomach and intestines
Skin:	Severe skin burns
Eyes:	Serious eye damage
Signs and symptoms of exposure:	Ingestion results in marked irritation of the stomach and intestines with nausea, vomiting, and diarrhea. In severe cases, the vomitus and stools are bloody and the patient goes into collapse and shock with weak, rapid pulse, cold sweats, coma and death. Chronic poisoning may manifest itself in different ways. There may be disturbances of the digestive system such as cramps, nausea, constipation, or diarrhea. Liver damage may occur. Disturbances of the blood, kidneys and nervous system may occur. To the best of our knowledge the acute and chronic toxicity of this substance is not fully known
Carcinogenicity:	EPA-A: Human carcinogen: sufficient evidence from epidemiologic studies IARC-1: Carcinogenic to humans: sufficient evidence of carcinogenicity NTP-1: Known to be carcinogenic: sufficient evidence from human studies Carcinogen as defined by OSHA ACGIH-A1: Confirmed human carcinogen: Agent is carcinogenic to humans based on epidemiologic studies RTECS contains tumorigenic and/or carcinogenic and/or neoplastic data for components in this product
Additional information:	

12 Ecotoxicological information

Toxicity:	
Toxicity to fish:	Rainbow trout LC50: 21,000 ug/L:96H
Toxicity to daphnia and other aquatic invertebrates:	Daphnia magna EC50: 8.23 mg/L:24H
Toxicity to algae:	No data available
Persistence and degradability:	

Biodegradability:	No data available
Bioaccumulative potential:	
Bioaccumulation:	Bioconcentration factor (BCF): 236
Mobility in soil:	No data available
Other adverse effects:	Very toxic to aquatic life with long lasting effects

13.1 Special considerations

Recommendation:	Consult state, local or national regulation for proper disposal Allow professional disposal company to handle waste Must be specially treated under adherence to official regulations
Unclean packagings recommendation:	Disposal must be made according to official regulations

14 Transport information

Land transport DOT



Proper shipping name:	Arsenic trioxide
Technical name:	
DOT Hazard Class:	6.1
Subsidiary risk:	
UN Identification number:	UN1561
Label(s):	Toxic
Packing group:	II
Reportable quantity (RQ):	0.454 kg
Warning label(s):	5, 7, 12
North American Emergency Response Guidebook No.:	151
Notes:	

Air transport ICAO-TI and IATA-DGR:



Proper shipping name:	Arsenic trioxide
Technical name:	
DOT Hazard Class:	6.1
Subsidiary risk:	
UN Identification number:	UN1561
Label(s):	Toxic
Packing group:	II
Reportable quantity (RQ):	0.454 kg
Warning label(s):	5, 7, 12
North American Emergency Response Guidebook No.:	151
Notes:	FedEx requires DOT-SP-8249

UPS Ground / FedEx Ground



Proper shipping name:	Arsenic trioxide
Technical name:	
DOT Hazard Class:	6.1
Subsidiary risk:	
UN Identification number:	UN1561
Label(s):	DOT-SP-8249
Packing group:	II
Reportable quantity (RQ):	0.454 kg
Warning label(s):	5, 7, 12
North American Emergency Response Guidebook No.:	151
Notes:	DOT-SP-8249, MP 2A, 3 or 4, 173.212

UPS Air



Proper shipping name:	Arsenic trioxide
Technical name:	
DOT Hazard Class:	6.1
Subsidiary risk:	
UN Identification number:	UN1561
Label(s):	DOT-SP-8249
Packing group:	II
Reportable quantity (RQ):	0.454 kg
Warning label(s):	5, 7, 12
North American Emergency Response	
Guidebook No.:	151
Notes:	DOT-SP-8249; Max Qty 25 kg; MP 2A, 3 or 4; 173.212

15 Regulatory information

SARA Section 302 Extremely Hazardous components and corresponding TPQs:	Subject to established reporting levels; 100 lb TPQ (lower threshold), 10,000 lb TPQ (upper threshold)
SARA Section 311 / 312 hazards:	Acute Health Hazard, Chronic Health Hazard
SARA Section 313 components:	This product contains chemical(s) subject to the reporting requirements of Section 313 of the Emergency Planning & Community Right-to-know Act of 1986 and 40CFR372
California Proposition 65 components:	WARNING: This product contains a chemical known to the State of California to cause cancer and birth defects or other reproductive harm
TSCA:	Product is listed on TSCA Inventory

16 Other information

The above information is accurate to the best of our knowledge. However, since data, safety standards and government regulation are subject to change and the conditions of handling and use, or misuse are beyond our control. NOAH MAKES NO WARRANTY, EITHER EXPRESSED OR IMPLIED, WITH RESPECT TO THE COMPLETENESS OR CONTINUING ACCURACY OF THE INFORMATION CONTAINED HEREIN AND DISCLAIMS ALL LIABILITY FOR RELIANCE THEREON. User should satisfy himself that he has all current data relevant to his particular use.

Review date: June 2, 2015



CERTIFICATE OF ANALYSIS

Code 17523

ARSENIC (III) OXIDE, 99.2% pure, -20 mesh, (Arsenic Trioxide; Arsenous Acid), As_2O_3

Lot 0293198/1.1

Assay (As_2O_3)	99.7%
Assay (Sb_2O_3)	< 0.1%
Al	< 0.002%
Bi	< 0.002%
Ca	< 0.002%
Fe	0.042%
Pb	0.015%
Sn	0.005%

Rec'd
1/27/16

All values are maximum and may represent detection limits.

Certificate of Analysis

Elementis Chromium Inc
Castle Hayne, NC 28429. US

ELEMENTIS

CHROMIUM

Customer:

Cascade Columbia Dist Co
6900 Fox Avenue South
Seattle WA 98108
United States

Material:	30025CCZ0050LBBG
Customer Part:	
Description:	SODIUM DICHROMATE DIHYDRATE

Bichromate

Customer Order: 84060

Customer Specification:

Our Order: 559048 SO

Ship From: 3000 - Castle Hayne NC, 28429. US

Lot Number: 3000QXDK0101

Ship Date: 3 OCT 2014

Quantity Shipped: 360.000 EA

Date Mfg: 1 OCT 2014

Test	Result	UOM
Sodium dichromate dihydrate	100.62	%
Sodium Sulfate	0.14	%
% Sulphate	0.10	%
Sodium Chloride	0.006	%
Chloride	0.004	%
Vanadium Pentoxide	0.004	%
Vanadium	0.002	%
CrO3 (Equivalent)	67.53	%
Water of Hydration	11.50	%

Appearance: Orange-Red Crystals
pH is not measured but is approximately 4.0 in a 1.5% solution.

Vanadium (V), Vanadium Oxide (V2O5), Sodium Chloride (NaCl), Chloride(Cl) are typical analyses.
CrO3 is calculated from the assay and is on this equivalent basis even though it is not present in crystal in this form.

H2O is contained in the crystal structure as water of hydration and is not free moisture.
Meets GSA Commercial Item Description A-A-59123 [formerly Federal Spec O-S-595b(1)].

*Rec'd
3/25/15*



220 COMMERCE DRIVE
SUITE 405
FORT WASHINGTON, PA 19034

(P) 215.461.1900
(F) 215.461.1919
www.hunterchem.com

CERTIFICATE OF ANALYSIS

Chrome Oxide Green HCR400

Date: October 14, 2014

Product: Chrome Oxide Green HCR400

Code: HCR400

Quantity: 4 x 25 kg bags 220.48 lb.

Lot#: LW808-13

Consignee: Bullseye Glass Company
3722 SE 21st Avenue
Portland, OR 97202 United States
503-232-8887

PO #: 64625_M

*Rec'd
10/17/14*

Lot #LW808-13		
		Result %
Chrome Oxide	Cr ₂ O ₃	99.6
Moisture		0.18
Aluminum	Al	0.07
Calcium	Ca	0.01
Carbon	C	0.081
Metallic Chromium	Cr	0.008
Hex Chrome	Cr ⁺⁶	<0.001
Iron	Fe	0.01
Magnesium	Mg	<0.01
Phosphorus	P	<0.01
Silicon	Si	0.01
Sodium	Na	0.05
Vanadium	V	0.01

Particle Size Analysis (Microtrac)	
% Passing	Micron
10	0.15
50	1.50
90	3.25

Certified true and correct:
Michael F. Aragon

New Supplier



DATA SHEET

Lion Chromate
Chromox™ 7903
FeCr₂O₄
Item Number: 07-7903

8/2012 forward

Typical Chemical Analysis

Cr ₂ O ₃	44%
FeO.....	26.1%
Al ₂ O ₃	14.8%
MgO	10.3%
SiO ₂	3.4%
CaO	0.4%
Moisture	1.0%

Physical Description

Color	black-gray
Fineness.....	93% thru 400 Mesh
Apparent Bulk Density	
Loose.....	78 lb/ft ³
Compacted	155 lb/ft ³
Package	50 lb paper bag
	2000 lb Sack
	Bulk Truck/Rail

12/21/09 QSF208CB
Supersedes: 12/8/08

The information and data contained herein are believed to be correct. However, we do not warrant either expressly or by implication, the accuracy thereof. We recommend that the prospective user determine the suitability of our materials and suggestions before adopting them on a commercial scale. No statement in this bulletin is to be construed as violating any copyright or patent.

Cadmium Frit



FERRO

MSDS

MATERIAL SAFETY DATA SHEET

Product Identification **FM 6392 (LP 305-A) Ferro Frit/Bullseye QS**
MANUFACTURING DATE: MARCH 2005 UP DATE: MARCH 2005

I. GENERAL DATA

MANUFACTURERS NAME: **FERRO MEXICANA, S.A. DE C.V.**
DIVISION: CERAMIC TILE
PHONE NUMBER: 52 55 57 60 61 00
ADDRESS: ORIENTE 171 NO. 450
COL. ARAGON INGUARAN
MEXICO D.F.
IN CASE OF EMERGENCY: SETIQ (24HRS) MEXICO 91 800 00 214

II. CHEMICAL SUBSTANCE DATA

CHEMICAL NAME: GLASSY BOROSILICATE COMPLEX
COMMERCIAL NAME: GRANULAR FRIT FM 6392
SYNONYMOUS: GLASSY POLIMER OF IRREGULAR STRUCTURE
CHEMICAL FAMILY: GLASSY COMPLEX (FRITS)
CHEMICAL COMPOSITION: SiO_2 IN MAJOR PROPORTION

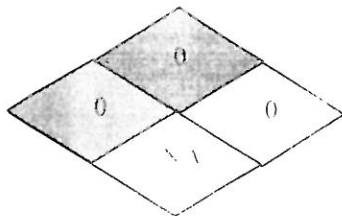
III. HAZARDOUS SUBSTANCE IDENTIFICATION

III.1 MATERIAL IDENTIFICATION

CAS NUMBER: 60676-86-0
ONU: N/A
LMPE-PPT: 0.1 mg/m³
LMPE-CT: -
LMPE-P: -
IPVS (IDLH): -

III.2 GRADE OF RISK CLASSIFICATION

MATERIALS' GRADE OF RISK (DIAMOND MODEL)



HEALTH	FLAMMABILITY
4. Very dangerous (liquid or steam)	4. Extremely flammable
3. Extremely Dangerous	3. Normal temperature Ignition
2. Risky. Respiratory Protection Required	2. moderate heat ignition
1. Slightly risky	1. It must be heated to be flammable
0. Ordinary Material	0. No Ignition
Specific Risk	Reactivity

OXT	Oxide	4. It can explode. Evacuate if materials were exposed
ACID	Acid	to fire.
CONG	Freezer	3. It can explode because of heat or hit.
CORR	Corrosive	2. Possible violent chemical changes
W	Avoid Water	1. Unstable if hot
N/A	Non applied	0. Normal stability

FRIT IS A MIXTURE OF INORGANIC CHEMICAL SUBSTANCES PRODUCED BY RAPIDLY QUENCHING A MOLTEN, COMPLEX COMBINATION OF MATERIALS, MODIFYING THE CHEMICAL SUBSTANCES THUS MANUFACTURED AS NON-MIGRATORY COMPONENTS OF GLASSY SOLID OR GRANULES.

IV. CHEMICAL AND PHYSICAL PROPERTIES

BOILING POINT (°C)	N/A
MELTING POINT (°C)	900 AN UP
INFLAMMING POINT (°C)	N/A
AUTO IGNITION POINT (°C)	N/A
DENSITY (gr/cc)	2.7+/-2%
pH	N/A
MOLECULAR WEIGHT	N/D
PHYSIC STATE	FLAKE OR GRANULE
COLOR	CLEAN
ODOR	NONE OR VERY SLIGHTLY
EVAPORATION RATE	N/A
SOLUBILITY IN WATER	NEGLIGIBLE
VAPOR PRESSURE (mmHg)	N/A
VOLATILE PERCENT	N/A
FLAMMABILITY OR EXPLOSION LIMIT	
a) TOP LIMIT	N/A
b) BOTTOM LIMIT	N/A

V. FIRE OR EXPLOSION HAZARD DATA

FLASH POINT	N/A
EXTINGUISHING MEDIA	NONE
FLAMMABLE LIMITS	N/A
SPECIAL FIRE FIGHTING PROCEDURES	NONE
UNUSUAL FIRE & EXPLOSION HAZARDS	NONE

VI. REACTIVITY DATA

STABILITY:	STABLE <input checked="" type="checkbox"/>	UNSTABLE <input type="checkbox"/>	N/A	Conditions to avoid	N/A
INCOMPABILITY (MATERIALS TO AVOID)	N/A				
HAZARDOUS DECOMPOSITION OR BYPRODUCTS	N/A				
HAZARDOUS POLYMERIZATION	Will not occur	<input checked="" type="checkbox"/>		Conditions to avoid	N/A

VII. HEALTH HAZARD DATA

PRINCIPAL ROUTS OF ABSORPTION: inhalation and Ingestion

EFFECTS OF OVEREXPOSURE: Metal fumes and /or fluoride containing vapors from firing may cause lung inflammation and injury terms of hours with symptoms of chest pains, chills, cough, headache and diarrhea.

Prolonged contact with the dust can be very irritating to the eyes and/or skin. High dust levels can be irritating to the respiratory tract. Excessive inhalation of crystalline silica containing dust over many years can result in silicosis, a disabling lung disease.

With adequate ventilation, dust control and good personal hygiene, symptoms of overexposure should not occur. Advise regular medical monitoring of employees by a physician competent in industrial health.

CARCINOGENICITY: In IARC has determined that crystalline silica from occupational exposure is in Group 1. "sufficient evidence in humans for carcinogenicity".

OTHER HEALTH INFORMATION: This product contains crystalline silica, a chemical known to the State of California to cause cancer.

EMERGENCY AND FIRST AID PROCEDURES: If overexposure is suspected move employee to fresh air; if breathing is difficult give oxygen. Call a physician. For dust in eyes, flush immediately with clean water and call a physician.

SOURCE OF HEALTH HAZARD DATA: this MSDS was developed from information on the constituent substances of this frit mixture, not from test data on the frit mixture itself.

VIII. PRECAUTIONS FOR SAFE HANDLING AND USE

STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED: Uncontaminated material may be recovered and re-used. If contaminated scoop, vacuum or wash into receptacle for disposal.

WASTE DISPOSAL METHOD: Barium is listed in US-EPA Code of Federal Regulation 40, part 261.24.b Testing of the waste may be required to determine status under hazardous waste regulations.

PRECAUTIONS TO BE TAKEN IN HANDLING AND STORING: Protect containers against physical damage, store in dry area away from feed and food products.

OTHER PRECAUTIONS: Employees should wash and change into clean clothes before going home.

IX. CONTROL MEASURES

RESPIRATORY PROTECTION: (Specify type) Use a NIOSH approved dust and/or fume respirator as necessary.

VENTILATION: Recommended for dust control, vent dust to collector.

PROTECTIVE GLOVES: Use judgement – cotton gloves recommended.

EYE PROTECTION: Use judgement – safety glasses recommended

OTHER PROTECTIVE CLOTHING OR EQUIPMENT: Wear appropriate clean, protective clothing such as, but not limited to, coveralls, smocks, aprons, gloves, shoes and hats

WORK/HYGIENIC PRACTICES: Food, beverages and smoking materials should NOT be in the work area. Hygiene is very important, employees should wash thoroughly before eating, drinking, smoking or applying.

Judgements as to suitability of information herein or the purchaser's purposes are necessarily the purchaser's responsibility. Reasonable care has been taken in the preparation of this information, but FERRO EXTENDS NO WARRANTIES, MAKES NO REPRESENTATIONS AND ASSUMES NO RESPONSIBILITY AS TO THE ACCURACY OR SUITABILITY OF THIS INFORMATION FOR ANY PURCHASER'S USE OR FOR ANY CONSEQUENCE OF ITS USE.

ours

Bullseye Glass					
March 12, 2005					
			↓		
			○		
	LP305-	A	B	C	
	CdO	11.5	12	13	
	SiO ₂	66	67	66	
	Al ₂ O ₃	4	4	4	
	Na ₂ O	7	7	7	
	B ₂ O ₃	9	10	10	
	ZnO	2.5	0	0	
	K ₂ O	0	0	0	
		100	100	100	

Ferro Cdo
Frit
Specs

Ferro → % of Oxides

Rec'd Bullseye's Ferro Frit Samples (3)
4/15/2005

Lead Frit



2741 Kimball Avenue
Pomona, California 91767
(909) 621-4421

MATERIAL SAFETY DATA SHEET

Issue Date:	12/04/2012	Product Code Name:	FM-403 FRITT <i>unground</i>
Product Name:	CERAMIC FRIT - <i>Lead</i>	Chemical Name & Synonyms	
Chemical Family		Trade and Synonyms	LEADED CERAMIC FRIT
Chemical Formula	VARIABLE		

I HAZARDOUS INGREDIENTS

MATERIAL OR COMPONENT	CAS No.	TLV* - TWA**	% BY WEIGHT
INORGANIC LEAD OXIDE		0.05 mg/m3 as PbO OSHA	

Threshold Limit Value TWA ** Time Weighted Average

II PHYSICAL DATA

Material is (At normal conditions)		Appearance and Odor	
[] Liquid [X] Solid [] Gas		CLEAR GLUE	
Acidity/Alkalinity	Melting Point N/E °F	Specific Gravity N/E	Vapor Pressure
pH = N / A	Boilinf Point N/A °F	Solubility(Water) N/E	N/A

III PERSONAL PROTECTIVE EQUIPMENT

Respiratory Protection	Hands, Arms and Body
CONVENTIONAL RESPIRATORY PROTECTION	NOR NORMALLY REQUIRED
Eyes and Face	Other Clothing and Equipment
PROTECTION IN DUSTY SITUATIONS	LOCAL EXHAUST VENTILATION TO MINIMIZE DUST EXPOSURE

IV TOXICITY DATA

Inhalation	AVOID INHALATION OF DUST
Ingestion	MAY ALLOW METALS WITHIN THE FRIT TO BE LEACHED WHILE IN THE DIGESTIVE TRACK
Skin Contact	NEGLEGIBLE RISK
Eye Contact	LOW RISK, ONLY MECHANICAL INJURY

hers

N/E = NOT ESTABLISHED N/A = NOT APPLICABLE

Rec'd
4/25/13

V SAFETY INFORMATION

FIRE AND EXPLOSION DATA		
Flash Point N/A °F [X] Not Flammable	Autoignition Temperature N/A °F	Flammable Limits in air Lower N/A % Upper N/A %
Unusual and Explosion Hazard NONE	Extinguish Media NO FIRE HAZARD	
REACTIVITY		
Stability [X] Stable [] Unstable	Incompability (Materials to Avoid) N/E	
Conditions to Avoid		
Hazardous Decomposition Products		

VI EMERGENCY AND FIRST AID PROCEDURES

INHALATION:	REMOVE PERSON TO FRESH AIR
SKIN CONTACT	WASH WITH SOAP AND WATER
EYES:	FLUSH WITH RUNNING WATER

VII ENVIROMENTAL

Spill or Leak Procedures HANDLE AS NORMAL SOLID WASTE SCOOP UP WASTE AND PLACE IN APPROPRIATELY MARKED CONTAINERS
Waste Disposal Method WASTE MATERIAL MAY BE DISPOSED OF UNDER CONDITIONS WICH MEET FEDERAL, STATE AND LOCAL ENVIROMENTAL CONTROL REGULATIONS

VIII ADDITIONAL INFORMATION

The information in this MSDS was obtained from sources which we believe are reliable. However, the information is provided without any representation or warranty, expressed or implied, regarding the accuracy or correctness.

The conditions or methods of handling, storage, use and disposal of the product are beyond our control and may be beyond our knowledge. For this and other reasons, we do not assume responsibility and expressly disclaim liability for loss, damage or expense arising out of or any way connected with the handling, storage, use or disposal of the product.



2741 Kimball Avenue
Pomona, California 91767
(909) 621-4421

MATERIAL SAFETY DATA SHEET

Issue Date: 12/04/2012	Product Code Name: <i>unground</i>
Product Name: CERAMIC FRIT	FM-403 FRITT

0
1
2
3
4

risk minimo
light risk
moderate
serious
severe

Health
Reactive
Explosion
Corrosion

2
0
0
0
0

CAUTION : in can be harmful if it is inhaled by a prolonged and it could cause damage later to the respiratory system

avoid breathing in highly dusty areas without the due protection

F&M

Ceramic Supplies, Inc.
Ceramic Engineering, Research and Supplies

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Typical glaze frit composition for FM-3403

Oxides	New FM-3403	Original Ferro 3403
Na2O	0.31%	0.31%
K2O	0.86%	1.48%
PbO	67.90%	67.78%
AL2O3	1.59%	2.31%
SiO2	29.24%	28.05%
CaO	0	0.07%
Coeff of Exp	N/A	7.18 10x(-6)
Fusion Temp °F	1350	1350
Flow Temp °F	1450	1450

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To Sam
4/18/11